Jeffrey Bigham

Helping the Blind Use the Web From Anywhere

By JEFFREY THOMAS

Courtesy Jeffrey Bigham

Jeffrey Bigham works on WebAnywhere, a self-voicing Web browser.

Less than one percent of the 38 million blind people in the world have a screen reader, a software program that reads the contents of a computer screen aloud.

Even those who do, often need to use the Web when they are not at their own computers. There just has not been anything inexpensive that was readily available in a public library or an Internet cafe or on a friend's laptop. Until now.

In May 2008, Microsoft awarded its first Accessible Technology Award for Interface Design to Jeffrey Bigham, a 27-year-old doctoral candidate in computer science at the University of Washington, for creating WebAnywhere, a self-voicing Web browser that enables blind and visually impaired people to access the Web from any available computer.

Bigham was inspired to create WebAnywhere because "Web access is becoming increasingly vital to our lives," he says.

As a researcher in human-computer interaction with a focus on Web accessibility, he had "been looking at how the ideas of community-based content and Web pages as applications can be leveraged to improve access. WebAnywhere was a natural fit," Bigham says. "People talk about how applications [such as e-mail, word processors and spreadsheets] continue to move from the desktop to the Web. I thought: Why can't access technology, like self-voicing Web browsers and screen readers, do the same?"

WebAnywhere—which Bigham is making available as free, open-source software—can be run on most systems, even public terminals on which users have few permissions. Its small size means users can begin browsing the Web quickly even on relatively slow connections.

For more information:

WebAnywhere

http://webanywhere.cs.washington.edu/

The system is written in JavaScript that is downloaded from a server, allowing it to run in most modern Web browsers, including Firefox, Internet Explorer and Safari. WebAnywhere can act as a search engine or give voice to all of the text on a Web page. It also learns to take into account the user's past preferences and to anticipate what the user will want.

People who suffer visual impairment short of blindness or who have certain learning disabilities may also benefit from Bigham's system.

He plans to add more features and ensure that WebAnywhere can operate on cell phones and other mobile devices with built-in Web access.

Blind people who evaluated WebAnywhere during its design phase were able to complete the kind of tasks that users may want to do on the go: checking e-mail, looking up a bus schedule and searching for a restaurant's phone number.

Now the alpha version, an early version of the software that may not contain all of the planned features, is available for general use.

"The trial has gone well," Bigham says. "We've had a lot of people visiting the site and giving us feedback, and we've thus far had no major problems.

"...The beauty of the Web is that releasing and distributing new versions is relatively painless. To do so, we just update the site and the next time a visitor comes to the site, they get the latest version of WebAnywhere. In that sense, we're able to make smaller changes quite regularly, and we've been doing so."

To use WebAnywhere, a user visits the WebAnywhere Web site, which provides a screen-reader interface that translates Web-based text to speech and reads the content aloud in English.

The software processes the text of the Web page on a server at the University of Washington and then sends the audio file to play in the user's Web browser.

Because WebAnywhere is free, open-source software, anyone can help improve it or add new features. While at present WebAnywhere only works in English, Bigham says versions in other languages hosted on local servers could also be created.

"We do not currently make WebAnywhere available in any Indian language. ...We would love for someone to work on support for other languages, especially Hindi, as our logs indicate a large number of users from India despite the lack of support for Indian languages," he says.

Bigham says he has been getting "very positive" comments from users. "People get excited when you talk about providing nonvisual access from almost any computer, especially when you say it's open-source and free."

WebAnywhere has been funded by the U.S. National Science Foundation and a Boeing Company professorship.

The Microsoft Award included $8,000 and a trip to the software company's Imagine Cup world finals in Paris in July, where Bigham demonstrated WebAnywhere.

"My goals in the future are to continue doing research and working with students, and also to keep doing things that actually help people," Bigham said after receiving the Microsoft Accessible Technology Award. "That has been one of the cool things about this project: It's not like we just did the study, learned some things and that's it. With WebAnywhere, we're actually taking it to the next step and getting it out to people who need it."

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